

Claims:

1. A process for separating 2-butanol from an industrial mixture which comprises 2-butanol, tert-butanol and water, wherein the proportion by mass of water is greater than the
5 limit concentration of the distillation boundary line connecting an azeotrope of tert-butanol and water; and an azeotrope of 2-butanol and water, comprising

(a) separating water from the industrial mixture by distillation to obtain a distillate, wherein the distillate has, in terms of the 2-butanol, tert-butanol and water in the industrial mixture, a proportion by mass of water, which at a pressure, is greater than the limit concentration of the
10 distillation boundary line connecting an azeotrope of tert-butanol and water; and an azeotrope of 2-butanol and water;

(b) subsequently changing the pressure so that the mixture has, in terms of the 2-butanol, tert-butanol and water in the distillate, a proportion by mass of water which is less than the limit concentration of the distillation boundary line connecting the distillation boundary line
15 connecting an azeotrope of tert-butanol and water; and an azeotrope of 2-butanol and water; and

(c) subsequently distilling the mixture at the same pressure into a stream comprising 2-butanol and a stream comprising tert-butanol and water.

20 2. The process as claimed in claim 1, wherein the distillation in (a) is performed on a distillation column.

3. The process as claimed in claim 1, wherein the distillation in (a) is performed at a pressure of from 0.7 to 5 bara.

4. The process as claimed in claim 3, wherein the pressure in (b) and (c) is from 0.05 to not more than 0.7 bara.

5 5. The process as claimed in claim 3, wherein the pressure in (b) and (c) is from at least 5 to 15 bara.

6. The process as claimed in claim 1, wherein the stream comprising 2-butanol contains less than 2% by mass of tert-butanol.

10 7. The process as claimed in claim 6, wherein the stream comprising 2-butanol contains less than 1.7% by mass of tert-butanol.

8. The process as claimed in claim 6, wherein a part of the distillate from (c) is combined with the distillate of (a) and used as a feed to the distillation in (c).

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9. The process as claimed in claim 1, wherein the separating of the stream comprising 2-butanol comprises taking a vapor phase of a vaporizer of a column; or a gaseous or liquid as a side stream in a stripping section of the column.

20 10. The process as claimed in claim 1, wherein the pressure in (a) is from 0.4 to 5 bara when the proportion of 2-butanol in the industrial mixture is from 0.001 to 30% by mass.

11. The process as claimed in claim 10, wherein the pressure in (b) is from 5 to 15 bara.

25 12. The process as claimed in claim 10, wherein the pressure in (b) is from 5 to 10 bara.

13. The process as claimed in claim 1, wherein the changing the pressure in (b) comprises increasing the pressure at least 2 times more than the pressure in (a).

14. The process as claimed in claim 1, wherein the stream comprising tert-butanol and
5 water comprises less than 4% by mass of 2-butanol.

15. The process as claimed in claim 1, wherein the stream comprising tert-butanol and water comprises less than 3% by mass of 2-butanol.

10 16. The process as claimed in claim 2, wherein the distillation in (a) is performed at a pressure of from 0.7 to 5 bara.

17. The process as claimed in claim 16, wherein the pressure in (b) and (c) is from 0.05 to not more than 0.7 bara.

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18. The process as claimed in claim 16, wherein the pressure in (b) and (c) is from at least 5 to 15 bara.

19. The process as claimed in claim 16, wherein the stream comprising 2-butanol contains
20 less than 2% by mass of tert-butanol.

20. The process as claimed in claim 19, wherein a part of the distillate from (c) is combined with the distillate of (a) and used as a feed to the distillation in (c).

21. The process as claimed in claim 16, wherein the separating of the stream comprising 2-butanol comprises taking a vapor phase of a vaporizer of a column; or a gaseous or liquid as a side stream in a stripping section of the column.

22. 2-butanol prepared by the process of claim 1.